

an abrasive slurry disposed between said [workpiece] silicon wafer surface and said lapping surface; and

means for relatively moving said lapping surface and said [workpiece] silicon wafer mounting means such that said [workpiece] silicon wafer surface is contacted and planarized by said lapping surface.

✓ 5. (amended) An apparatus as claimed in claim 4, wherein said lapping surface is made from a soft and pliable material that conforms to integrated circuit device layers formed on said [workpiece] silicon wafer surface and resists damage to said integrated circuit device layers.

✓ 6. (amended) A method for chemically and mechanically planarizing a [workpiece] silicon wafer surface comprising the following steps:

providing a compressible non-cellular lapping surface; and
effecting relative movement between said lapping surface and said [workpiece] silicon wafer surface in the presence of an abrasive slurry to planarize said [workpiece] silicon wafer surface.

✓ 7 10. (amended) A method as claimed in claim 9, and further comprising the step of making said lapping surface from a soft and pliable material that will conform to integrated circuit device layers formed on said [workpiece] silicon wafer surface and resist damage to said integrated circuit device layers.

REMARKS

In the Examiner's final Office Action, the Examiner rejected claims 4-10 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, 8-13,

and 16-19 of U.S. Patent No. 5,769,691. In response to this rejection, Applicant previously filed a Terminal Disclaimer with Applicant's Amendment and Response filed October 9, 1998 to overcome the Examiner's obviousness-type double patenting rejection. However, the Examiner, in her final Office Action, states that Applicant's Terminal Disclaimer does not comply with 37 C.F.R. §1.321(b) and/or (c) because the person who has signed the Disclaimer has not stated the extent of his/her interest, or the business entity's interest, in the application/patent. Applicant respectfully traverses the Examiner's statement regarding Applicant's previously filed Terminal Disclaimer. Specifically, Applicant points out that Applicant's attorney of record, namely Laura J. Zeman, has signed the Terminal Disclaimer as Applicant's attorney of record, which is indicated in the last paragraph on page 2 of Applicant's Terminal Disclaimer. Applicant's previously filed Terminal Disclaimer also identifies SpeedFam Corporation as the assignee and owner of the patent application in paragraph 1 on page 1 of Applicant's previously filed Terminal Disclaimer. A copy of Applicant's previously filed Terminal Disclaimer, filed October 9, 1998, is attached to this Amendment and Response for the Examiner's easy reference.

The Examiner also rejected claims 4-10 under 35 U.S.C. §103(a) as being unpatentable over *Ronay*, U.S. Patent No. 5,752,875, in view of *Samuelson*, U.S. Patent No. 4,048,765. Specifically, the Examiner reiterates her position in the Examiner's previous Office Action in which she states that *Ronay* discloses a polyurethane pad to polish a wafer and *Samuelson* teaches polishing with a non-cellular pad of non-cellular urethane that is flexible and free to deform with the workpiece. Therefore, the Examiner contends that it would have been obvious to one of ordinary skill in the art to substitute the pad in *Ronay* with the non-cellular pad taught by *Samuelson* to arrive at Applicant's claimed invention. Applicant respectfully traverses this rejection.

Samuelson generally discloses a deformable polyurethane wheel for polishing, finishing and deburring the surface of ground metal parts. Further, *Samuelson* discloses that the polyurethane composition used to form the wheel contains 3-10 parts of mica, ½-10 parts of molybdenum disulfide, and 20-90 parts or more of abrasive grains per 100 parts by weight of the polyurethane prepolymer. (See column 2, lines 1-5.)

In addition, the *Samuelson* patent reference specifically states that the method and apparatus of the invention are suitable for finishing workpieces formed of steel and other metals. (See column 4, lines 39-45; column 10, lines 45-56; column 11, lines 21-48; Figure 6 and Figures 10-14; and claims 1-6.) In addition, *Samuelson* specifically discloses that the polishing and finishing wheel described therein is well suited for use in O.D. grinders and centerless machines for finishing, lapping and honing operations.

It is well known in the art that polishing wheels for metal parts are not interchangeable or equivalent to polishing or lapping surfaces for silicon wafers. Accordingly, in that the solid polyurethane polishing and finishing wheel disclosed in *Samuelson* is specifically directed to metal parts, it would not have been obvious to one of ordinary skill in the art to substitute the polyurethane pad disclosed in *Ronay* with the polishing and finishing wheel taught by *Samuelson* in order to perform chemical and mechanical planarization on a silicon wafer surface.

In view of the foregoing, Applicant respectfully submits that all of the pending claims are allowable over the prior art of record. Reconsideration of the application and allowance of all pending claims is earnestly solicited. Should the Examiner wish to discuss any of the above in greater detail or deem that further amendments should be made to improve the form of the claims, then the Examiner is invited to telephone the undersigned at the Examiner's convenience.

Respectfully submitted,

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